

**AMENDMENTS TO THE CLAIMS**

1. (previously amended) Apparatus comprising:
  - a capsule, adapted to be swallowed by a subject, and comprising:
    - at least one radiation source, adapted to emit radiation having an energy of at least 10 keV; and
    - at least one photon detector, adapted to detect photons generated responsively to the emitted radiation, the photons having an energy of at least 10 keV;
    - a radiopaque oral contrast agent, adapted to be administered to the subject; and
    - a control unit, adapted to analyze data regarding the photons in order to generate information useful for identifying a clinically-relevant feature of a gastrointestinal (GI) tract of the subject.
2. (canceled)
3. (previously amended) The apparatus according to claim 1 wherein the agent comprises an agent having a high Z, adapted to be administered to the subject.
- 4.-5. (canceled)
6. (original) The apparatus according to claim 1, wherein the radiation source comprises a radioisotope.
- 7.-9. (canceled)
10. (original) The apparatus according to claim 1, wherein the radiation source comprises at least one collimator, adapted to collimate the radiation emitted by the radiation source.

11. (original) The apparatus according to claim 1, wherein the photon detector comprises at least one collimator, adapted to collimate the photons detected by the photon detector.

12. (original) The apparatus according to claim 1, wherein the control unit is adapted to distinguish between gas in the GI tract and the clinically-relevant feature.

13. (original) The apparatus according to claim 1, wherein the control unit is adapted to analyze X-ray fluorescence (XRF) photons generated responsively to the emitted radiation.

14. (original) The apparatus according to claim 1, wherein the control unit is adapted to analyze X-ray fluorescence photons generated responsively to the emitted radiation, and Compton backscattered photons generated responsively to the emitted radiation.

15.-21. (canceled)

22. (currently amended) The apparatus according to claim 1, ~~any one of claims 1-21~~, wherein the control unit is adapted to estimate a distance from a site of the capsule to a wall of the GI tract.

23. (canceled)

24. (currently amended) The apparatus according to ~~claim-23~~ 22, wherein the control unit is adapted to analyze Compton backscattered photons generated responsively to the emitted radiation.

25. (original) The apparatus according to claim 24, wherein the control unit is adapted to estimate the distance by estimating a depth of the contrast agent between the site of the capsule and the wall of the GI tract responsively to the analysis of the Compton backscattered photons.

26. (canceled)

27. (currently amended) The apparatus according to claim 26 22, wherein the control unit is adapted to analyze X-ray fluorescence (XRF) photons generated responsively to the emitted radiation.

28. (canceled)

29. (currently amended) The apparatus according to ~~any one of claims 1-21, claim 1,~~ wherein the radiation source is adapted to emit the radiation from the capsule only a portion of a time that the capsule is in the GI tract.

30. (original) The apparatus according to claim 29, wherein the capsule comprises a sensor, adapted to sense a parameter indicative of possible imminent motion of the capsule in the GI tract, and wherein the radiation source is adapted to emit the radiation from the capsule responsively to the sensing of the parameter by the sensor.

31. (canceled)

32. (original) The apparatus according to claim 29,  
wherein the radiation source comprises a radioisotope,  
wherein the capsule comprises a radiation shield, and  
wherein the capsule comprises an actuator, adapted to move at least one of the radiation source and the shield, such that the shield does not block the radiation emitted from the radiation source during the portion of the time.

33.-35. (canceled)

36. (currently amended) The apparatus according to ~~any one of claims 1-21, claim 1,~~ wherein the capsule comprises an inflatable balloon, adapted to inflate around the capsule.

37.-54. (canceled)

55. (currently amended) The apparatus according to ~~any one of claims 1-21, claim 1,~~ wherein the at least one photon detector comprises a plurality of photon detectors, arranged to detect photons arriving from a plurality of respective detection directions.

56. (canceled)

57. (currently amended) The apparatus according to ~~any one of claims 1-21, claim 1,~~ wherein the capsule comprises at least one radiation shield.

58. (original) The apparatus according to claim 57, wherein the at least one shield is configured to prevent radiation from being emitted from the radiation source in directions other than a single confined solid sector relative to a sphere surrounding the capsule.

59.-62. (canceled)

63. (currently amended) The apparatus according to ~~any one of claims 1-21, claim 1,~~ wherein the clinically-relevant feature includes a pathological abnormality of the GI tract.

64. (original) The apparatus according to claim 63, wherein the pathological abnormality includes a polyp.

65.-68. (canceled)

69. (currently amended) The apparatus according to ~~any one of claims 1-21, claim 1,~~ wherein the control unit is adapted to detect that the capsule has reached an area of clinical interest within the GI tract.

70. (canceled)

71. (original) The apparatus according to claim 69, wherein the control unit is adapted to detect that the capsule has reached the area by detecting and analyzing X-ray fluorescence (XRF) photons.

72.-73. (canceled)

74. (original) The apparatus according to claim 69, wherein the capsule comprises a pressure sensor, and wherein the control unit is adapted to detect that the capsule has reached the area responsively to a change in pressure detected by the pressure sensor.

75. (canceled)

76. (original) The apparatus according to claim 74, wherein the control unit is adapted to detect that the capsule has reached the area by detecting and analyzing X-ray fluorescence (XRF) photons, and responsively to the change in pressure.

77.-81. (canceled)

82. (currently amended) The apparatus according to ~~any one of claims 1-21~~ claim 1, wherein the capsule comprises at least one extending element, adapted, when extended, to maintain the capsule at least a certain distance from a wall of the GI tract.

83.-86. (canceled)

87. (currently amended) The apparatus according to ~~any one of claims 1-21~~ claim 1, wherein the capsule comprises at least one extending element, adapted, when extended, to orient a long axis of the capsule generally parallel to a longitudinal axis of the GI tract.

88. (canceled)

89. (currently amended) The apparatus according to ~~claim-88~~ 87, wherein the extending element comprises an expandable flexible chamber, wherein the flexible chamber comprises a super-absorbent hydrogel, and wherein the flexible chamber is adapted to expand when the hydrogel absorbs liquids from the GI tract.

90.-111. (canceled)

112. (previously amended) A method comprising:

- administering a radiopaque oral contrast agent to a subject;
- emitting, from within a gastrointestinal (GI) tract of the subject, radiation having an energy of at least 10 keV;
- detecting, from within the GI tract, photons generated responsively to the emitted radiation, the photons having an energy of at least 10 keV; and
- analyzing data regarding the detected photons in order to generate information useful for identifying a clinically-relevant feature of the GI tract.

113.-122. (canceled)